

PDEOZE PowerContainer

Communication base station hybrid energy chassis



Overview

What is a hybrid control strategy for communication base stations?

The objective of this paper is to present a hybrid control strategy for communication base stations that considers both the communication load and time-sharing tariffs.

What is a 5G communication base station?

The 5G communication base station can be regarded as a power consumption system that integrates communication, power, and temperature coupling, which is composed of three major pieces of equipment: the communication system, energy storage system, and temperature control system.

What is a base station energy storage system?

A single base station energy storage system is configured with a set of 48 V/400 A-h energy storage batteries. The initial charge state of the batteries is assumed to obey a normal distribution, assuming that the base station has a uniform specification and its parameters are shown in Table 2. Table 2. Parameters of the energy storage system.

Why do communication base stations use battery energy storage?

Meanwhile, communication base stations often configure battery energy storage as a backup power source to maintain the normal operation of communication equipment [3, 4]. Given the rapid proliferation of 5G base stations in recent years, the significance of communication energy storage has grown exponentially [5, 6].

Can a power grid model reduce the power consumption of base stations?

The analysis results demonstrate that the proposed model can effectively reduce the power consumption of base stations while mitigating the fluctuation of the power grid load.

How are communication base stations represented in a given area?

In a given area, the communication base stations are represented as $M = \{1, 2, \dots, m\}$ base stations, $I = \{1, 2, \dots, i\}$ mobile users, and $T = \{1, 2, \dots, t\}$ operating time slots of base stations. Figure 1 illustrates the distribution of communication base stations and users in the region.

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